

WHAT IS CLAIMED IS:

1. An optical transceiver, comprising:

a photoelectric transducer implemented on a substrate and having a light transmitting device for converting an electrical signal into a light signal,  
5 a high-speed signal line for the light transmitting device, a bias line for the light transmitting device, a light receiving device for converting the light signal into the electrical signal, a high-speed signal line for the light receiving device, a bias line for the light receiving device, a first dummy ground line located adjacent to the high-speed signal line for the light transmitting device,  
10 and a second dummy ground line located adjacent to the high-speed signal line for the light receiving device; and

a light signal transmitter connected to the photoelectric transducer, transmitting a light signal received from an optical fiber to the light receiving device, and transmitting a light signal generated from the light transmitting device to the optical fiber.  
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2. The optical transceiver of claim 1, wherein the substrate is composed of a silicon substrate having a silicon oxide film.

20 3. The optical transceiver of claim 1, wherein the first dummy ground line is located between the high-speed signal line for the light transmitting device and the bias line for the light transmitting device; and

the second dummy ground line is located between the high-speed signal line for the light receiving device and the bias line for the light receiving device.

5           4. The optical transceiver of claim 1, wherein the light transmitting device is a laser diode and the light receiving device is a photo diode.

5. The optical transceiver of claim 1, wherein the light signal transmitter is composed of a planar lightwave circuit (PLC).

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6. The optical transceiver of claim 1, wherein the high-speed signal line for the light transmitting device is located between the bias line for the light transmitting device and the first dummy ground line; and

the high-speed signal line for the light receiving device is located  
15 between the bias line for the light receiving device and the second dummy ground line.

7. The optical transceiver of claim 6, wherein the space between the high-speed signal line for the light transmitting device and the first dummy  
20 ground line is less than or equal to the space between the high-speed signal line for the light transmitting device and the bias line for the light transmitting device; and

the space between the high-speed signal line for the light receiving device and the second dummy ground line is less than or equal to the space between the high-speed signal line for the light receiving device and the bias line for the light receiving device.

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8. The optical transceiver of claim 6, wherein the first and the second dummy ground lines are located outside the photoelectric transducer; and the bias lines for the light transmitting device and the light receiving device are located inside the photoelectric transducer.

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9. The optical transceiver of claim 1, wherein the photoelectric transducer further comprises a monitor photo detector (MPD) and a monitor photo detector (MPD) signal line for monitoring optical power of the light transmitting device.

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10. The optical transceiver of claim 9, wherein the first dummy ground line is located between the high-speed signal line for the light transmitting device and the bias line for the light transmitting device; and

the second dummy ground line is located between the high-speed signal line for the light receiving device and the bias line for the light receiving device.

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11. The optical transceiver of claim 9, wherein the light transmitting device is a laser diode and the light receiving device is a photo diode.

12. The optical transceiver of claim 9, wherein the light signal  
5 transmitter is composed of a planar lightwave circuit (PLC).

13. The optical transceiver of claim 9, wherein the high-speed signal line for the light transmitting device is located between the bias line for the light transmitting device and the first dummy ground line; and

10 the high-speed signal line for the light receiving device is located between the bias line for the light receiving device and the second dummy ground line.

14. The optical transceiver of claim 13, wherein the space between the  
15 high-speed signal line for the light transmitting device and the first dummy ground line is less than or equal to the space between the high-speed signal line for the light transmitting device and the bias line for the light transmitting device; and

the space between the high-speed signal line for the light receiving  
20 device and the second dummy ground line is less than or equal to the space between the high-speed signal line for the light receiving device and the bias line for the light receiving device.

15. The optical transceiver of claim 13, wherein the first and the second dummy ground lines are located outside the photoelectric transducer; and the bias lines for the light transmitting device and the light receiving device are located inside the photoelectric transducer.

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16. The optical transceiver of claim 1, further comprising:  
a package encapsulant attached to the substrate;  
a leadframe pad located inside the package encapsulant; and  
a plurality of leadframes connected to the high-speed signal line for the light transmitting device, the bias line for the light transmitting device, the high-speed signal line for the light receiving device, the bias line for the light receiving device, the first dummy ground line, the second dummy ground line, and the leadframe pad, respectively.

17. The optical transceiver of claim 16, wherein the first dummy ground line is located between the high-speed signal line for the light transmitting device and the bias line for the light transmitting device; and the second dummy ground line is located between the high-speed signal line for the light receiving device and the bias line for the light receiving device.

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18. The optical transceiver of claim 16, wherein the light transmitting device is a laser diode and the light receiving device is a photo diode.

19. The optical transceiver of claim 16, wherein the light signal transmitter is composed of a planar lightwave circuit (PLC).

5           20. The optical transceiver of claim 16, wherein the high-speed signal line for the light transmitting device is located between the bias line for the light transmitting device and the first dummy ground line; and

          the high-speed signal line for the light receiving device is located between the bias line for the light receiving device and the second dummy  
10 ground line.